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# Children's recognition and use of rules of moral conduct in stories

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This study investigated the degree to which children can (a) recognize rules of moral conduct in stories and (b) use the rules to group stories. Eighteen third-grade and 18 fifth-grade children listened to nine Bible stories that illustrated three rules of conduct: Helping, Not being afraid, and Obeying. Eighteen kindergarten children participated in a simplified version of the task that used two stories per rule. Results of a recognition task indicated that children at each age were able to identify individual story exemplars of the three rules of moral conduct. Pictures that were paired with each story were sorted into groups based on how children thought they should go together, both before and after story presentation. Cluster analyses of groups made during the sorting task showed significant differences between the story groups formed during the prestory compared with the poststory sorting, with the poststory sorts reflecting rule-based groupings for the older children. Story features that might compete with rules of moral conduct as the basis for sorting tended to be characters and actions. Discussion focuses on the relationship between identifying examples of rules and the spontaneous use of them as the basis for similarity groupings.

Stories serve a variety of functions, including entertainment, teaching about social relationships, and communicating societal ethics and values (e.g., Eisenberg-Berg & Hand, 1979; Elkind & Dabek, 1977; Kohlberg, 1969; Stein, 1983). Religious education curricula, in particular, often use stories to teach very young children about the rules of conducting a "moral" life (e.g., *Gospel Light Living Word Curriculum*, 1972). Many of these curricula appear to assume that children's perception and comprehension of the main idea or point of the story will be the specific, adult-identified rule of conduct. Furthermore, the instructional activities included in these curricula ask children to apply rules of conduct illustrated in one story to their own lives and to other stories. This application task requires that children make similarity judgments among stories and real life events using rules of conduct as the basis for the comparison.

Rules of conduct refer to such adages as "Be helpful," "Be kind

to others," "Be obedient," "Be respectful," etc. These are abstract concepts whose meaning may be very situation-specific for young children. Rules of conduct are similar to morals of stories, as in Aesop's fables. Essentially, the point or message of the story is summarized by such morals. Although there has been little empirical work on comprehension of and memory for story morals, structural analyses of stories include morals as optional information (e.g., Mandler & Johnson, 1977). Furthermore, morals are not typically included when stories are recalled by either children or adults, nor when they are asked what the story was about (e.g., Goldman, Reyes, & Varnhagen, 1984; Mandler & Johnson, 1977; Stein & Glenn, 1979). Rather, typical performances include the recall of the characters, what they did, and the result(s) of what they did. Adults and older children, but not younger children, also include internal psychological states.

The story comprehension work raises several issues pertinent to instructional activities that assume that children will (a) identify rules of conduct in stories and (b) be able to recognize other instances of such rules, either in stories or in real-life events. In the present research we empirically tested the first of these assumptions; further, we examined the nature of children's similarity judgments about stories, testing the hypothesis that stories exemplifying the same rule of conduct would be viewed as similar. A recognition task was used to examine identification of rules of conduct exemplified in individual stories, and a sorting task was used to examine whether stories that exemplified the same rule of conduct were viewed as similar to one another.

The sorting task (Miller, 1969) has been widely used with very young children (preschoolers) to examine concept development and the characteristics of objects that are used for grouping (e.g., Markman & Hutchinson, 1984; Nelson, 1979). When asked to group objects, preschoolers tend to put together objects that can be acted on similarly or that have physical similarities, such as a ball and an apple. In contrast, adults tend to group objects on the basis of categorical, or taxonomic membership, such as all toys, all fruits. By extension, for stories, we anticipated that younger children (kindergartners) as contrasted with older children (third and fifth graders) would group stories on the basis of similarity in the characters and actions in the stories rather than on the basis of the rules of conduct exemplified by the stories. We made no developmental predictions regarding recognition of rules of conduct exemplified in single stories, although we did expect differences among the rules of conduct. Three rules of conduct were examined: Being helpful, Being obedient, and Not being afraid. We expected helpfulness to be easier to recognize than

the other two rules of conduct, based on previous research showing that this concept is acquired relatively early by most children (Eisenberg, 1982). Each rule of conduct was exemplified in three Bible stories, each of which was presented with an appropriate picture.

The two tasks (recognition and sorting) were administered to each child. However, the kindergartners participated in a simplified version of the tasks administered to the third- and fifth-grade children. The kindergarten children received two story exemplifications of each rule of conduct. As a result, the kindergarten data were analyzed separately from those of the older students.

## EXPERIMENT

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### METHOD

#### Subjects

Eighteen kindergarten ( $M = 5.9$  years), 18 third-grade ( $M = 8.9$  years), and 18 fifth-grade students ( $M = 10.9$  years) attending a private Christian school participated in the experiment. There were approximately equal numbers of boys and girls at each grade level.

#### Materials and design

Nine stories were adapted from classic Bible stories, and they exemplified three rules of conduct: Helping, Not being afraid, and Obeying. For Helping, the stories were "Feeding the Five Thousand" (H1), "The Good Samaritan" (H2), and "Philip Helps a Man" (H3); for Not being afraid, the stories were "Peter in Jail" (A1), "Daniel in the Lion's Den" (A2), and "Three Boys in Babylon" (A3); and for Obeying, the stories were "Noah and the Ark" (O1), "Samuel Finds a King" (O2), and "Abraham and Isaac" (O3). The original stories were adapted to conform to vocabulary and content levels consistent with religious education curricula used with kindergarten children. The adaptations consisted largely of reducing the number of characters to three or four in each story and changing the dialogue from direct to indirect speech acts. The experimental versions of the stories had about 100 words. The nine stories are given in the Appendix.

Each of the three stories exemplifying a particular rule contained similar information designed to cue one of the three particular rules. In the case of the Helping stories, for example, each of the stories contained a character's decision to help and the actions done to help. For Not being afraid and Obeying, the endings contained appropriate and explicit reference to these two rules of behavior.

For each story, an appropriate 8 × 12-in. (20 × 30-cm) picture was selected from typical Bible illustrations. The pictures were perceptually distinct from one another. Each picture was shown with its story during presentation; the children (a) chose the pictures during the recognition task and (b) placed

them into groups during the sorting task. The nine pictures are given in the Appendix (Figure A-1).

The third- and fifth-grade students were presented with all nine story-picture pairs. The tasks were simplified for the kindergartners by using only two exemplars of each rule. Three presentation orders were developed using Latin square counterbalancing procedures to control for sequence effects. Thus, in one presentation order, story H1 appeared first, in a second it appeared last, and in a third it appeared in the middle of the presentation sequence. Two stories exemplifying the same rule never occurred consecutively. Equal numbers of subjects within each grade received each presentation order.

Rule of conduct (Helping, Not being afraid, and Obeying) was a within-subjects factor. Two grade levels constituted a between-subjects factor because the kindergarten data were analyzed separately. Three sets of data were analyzed: the stories chosen as examples of each rule during the recognition task, the free-sort groupings, and verbal explanations of the free-sort groupings.

## **Procedure**

Each subject was seen individually in two sessions approximately one week apart. The first session, lasting approximately 20 min, involved a prestory sort in which the children were asked to place the pictures into groups based on "how you think they should go together." The prestory sort was used to determine the groups that would be constructed based on the perceptual cues present in the pictures. These groups were compared with those constructed after the stories had been presented. The second session involved two tasks: a picture sort following presentation of the stories and a rule recognition task. Task order (sort then recognition) was fixed to avoid biasing the sorting behavior by information provided during the rule recognition task.

The second session lasted approximately one hour. During the first part of the session, the experimenter read each story aloud. The child looked at the corresponding picture for each story while the story was being read. After each story was read, its picture was replaced by the appropriate picture for the next story. Then the next story was read. After all of the stories had been presented, the pictures were placed on the table in the same order in which the stories had been presented, and the child was asked to recall the story that went with each picture. Full recall was not required; if the child could recall the major events in the story, including the information associated with the rule of conduct, the experimenter continued with the task. If a child could not remember the gist of the story, the experimenter reread the story that went with that particular picture, went through the remaining pictures for gist recall, and then checked all stories again. Thus, children did not proceed with the story sorting and rule recognition tasks until they demonstrated that they could remember the individual stories that were paired with each picture. All children met this criterion within 3 readings of any individual story.

The children were then asked to "put the pictures together that tell the same kind of story." After completing this poststory sort, the children were asked to explain why they had made the groups that they had. The experimenter picked up each group, placed the pictures from that group in front of the child and asked, "Why did you put these together?" A follow-up probe was used if there was no response: "Why do these pictures tell the same kind of story?" This was repeated for each group. The number of groups was not restricted.

The second part of the session was the rule recognition task. The experimenter shuffled the pictures and gave the children the set. Children were told "Look through them [the pictures] and give me all the pictures for stories that are about [Rule 1]." After the child went through the deck selecting pictures, the order of the deck was randomized by shuffling and Rule 2 was requested; then Rule 3 was requested. The order in which the three rules were requested was counterbalanced across subjects within each age group.

## RESULTS

### Rule recognition

The rule recognition task data were hit and false alarm rates for each child, computed for each rule. The hit rate was the number of correctly selected pictures for the rule divided by the three possible correct pictures for the rule (two for the kindergartners). False alarm rate was the number of nontarget rule pictures selected as exemplifying the target rule, divided by the other six pictures (four in the kindergarten group). Thus, for each rule there were three target pictures and six distractors. Because the hit rate and false alarm rate data were proportions and the hit rate was above 90%, the arcsine transformation was applied to the proportions and these were analyzed.

The transformed hit rate and the false alarm rate data were each submitted to analysis of variance (ANOVA) in which grade (fifth and third) was the between-subjects factor and rule (Helping, Not being afraid, and Obeying) was the within-subjects factor. In the hit rate analysis, there was a significant main effect of rule,  $F(2, 68) = 4.36$ ,  $p < .05$ , but neither a main effect of grade nor an interaction,  $F(1, 34) = 1.06$ , and  $F(2, 68) < 1$ . The mean arcsine transform of the proportion of hits was 2.73 for the third graders and 2.84 for the fifth graders. Orthogonal contrasts on the rule effect indicated that the hit rates for Helping ( $M = 2.95$ ) and for Not being afraid ( $M = 2.8$ ) were significantly greater than the hit rate for Obeying ( $M = 2.61$ ),  $F(1, 68) = 6.8$ ,  $p < .05$ , but that there was no difference between Helping and Not being afraid,  $F(1, 68) = 1.69$ .

The ANOVA of the transformed false alarm rates indicated no main effect of grade, and a significant rule effect,  $F(2, 68) = 5.73, p < .01$ : Helping and Not being afraid were equivalent (.94) and less than Obey (1.36),  $F(1, 68) = 6.8, p < .05$ . There was also a significant Rule  $\times$  Grade interaction,  $F(2, 68) = 3.63, p < .05$ . However, simple main effects tests on the interaction indicated no significant grade differences in false alarm rates for any of the three rules. Examination of the cell means for this interaction indicated that consistent with the main effect for rule, false alarm rates were highest for the Obey rule at each grade (1.67 for third and 1.05 for fifth grade). However, in the fifth grade, rates were lower for Helping (.85) than for Not being afraid (1.01), whereas in the third grade they were lower for Not being afraid (.88) than for Helping (1.04).

The ANOVAs of the transformed kindergarten data indicated no rule effects in either the hit rate or false alarm rate data,  $F_s(2, 34) < 1$ . Mean hit rate was 2.96 and the mean false alarm rate was 1.07.

The untransformed hit and false alarm rates were used to compute sensitivity and bias measures for each child for purposes of conducting nonparametric signal detection analyses (Grier, 1971). For the third- and fifth-grade bias scores, ANOVAs indicated no significant effects related to grade, rule, or their interaction. The overall mean of  $-.58$  indicated somewhat of a tendency to identify nonexemplars as target rule exemplars. For the kindergarten students, there was no effect of rule,  $F(2, 17) < 1$ , and the mean bias of  $-.44$  reflected a tendency similar to that observed in the older students.

The ANOVA of the third- and fifth-grade sensitivity scores (minimum sensitivity = 0, maximum = .5) replicated the pattern of effects observed in the false alarm rate data. Simple main effects tests conducted on the Grade  $\times$  Rule interaction,  $F(2, 68) = 3.3, p < .05$ , indicated that there were no grade differences in sensitivity to the Helping rule or to the Not being afraid rule,  $F_s < 1$ . Mean scores on the Helping rule were .34 and .37 for the third and fifth graders, respectively. For the Not being afraid rule, the means were third grade = .34 and fifth grade = .33. The sums of squares for the Obeying rule accounted for 83% of the variance resulting from the interaction of grade and rule, although the difference between the fifth graders ( $M = .29$ ) and the third graders ( $M = .15$ ),  $F(1, 68) = 3.5, .05 < p < .1$ , exceeded conventional probability levels of statistical significance. The ANOVA for the kindergarten sensitivity scores indicated no effect of rule, with mean sensitivity = .31,  $F(2, 34) < 1$ .

The results of the recognition task indicate that all children were highly accurate at identifying exemplars of each rule when they were specifically asked to consider one rule at a time and make a yes/no

decision on each picture-story pair, considered one at a time. Thus, the recognition data indicate that the experimenter-defined target rule in each story was recognized by the children. However, accurate identification (sensitivity) was higher for Helping and Not being afraid than for Obeying, especially for the third graders.

### Sorting task

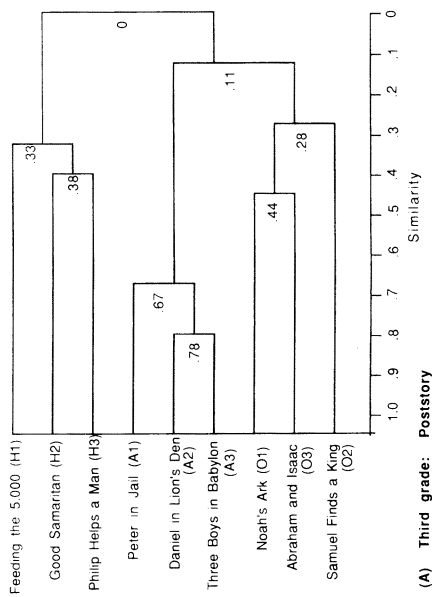
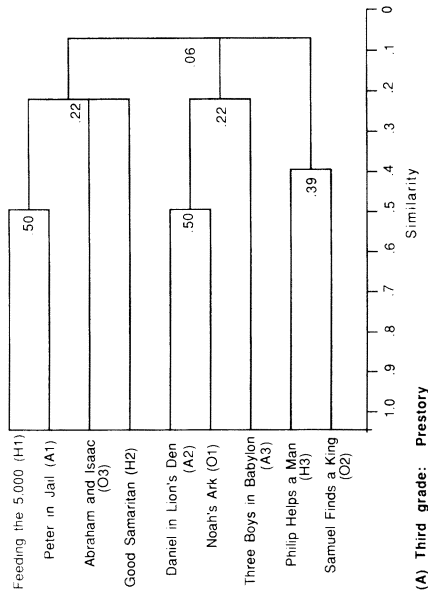
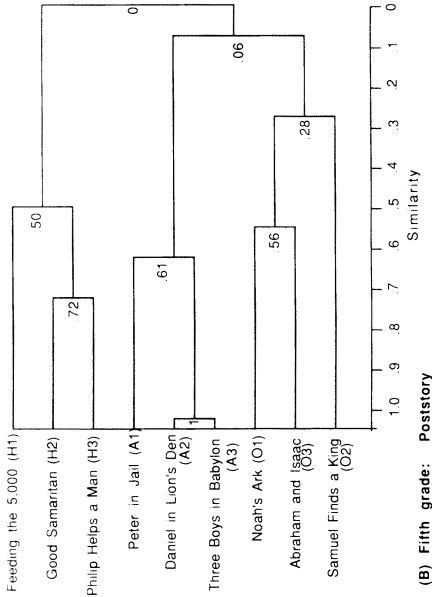
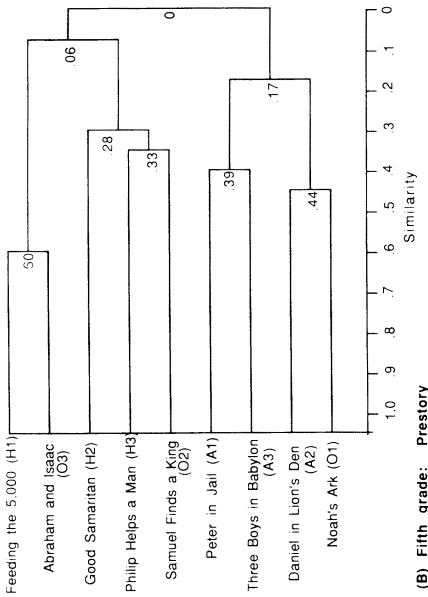
The number of groups made by each child during the pre- and the poststory sorts was one dependent measure. The identity of the stories placed in each group was used to derive pre- and poststory co-occurrence matrices, which were analyzed using multivariate techniques.

The number of groups in each sort was submitted to an ANOVA in which grade (fifth and third) was a between-subjects factor and time of sort (pre- or poststory) was a within-subjects factor. There was a significant interaction of grade and time of sort,  $F(1, 34) = 5.36$ ,  $p = .03$ . Examination of the means for this interaction indicated that fifth graders tended to make more groups on the prestory sort (4.5) than on the poststory sort (3.67), whereas for the third graders the number of prestory groups (4.22) and poststory groups (4.44) did not differ. No other main effects were significant,  $F_s(1, 34) < 1.8$ . The ANOVA of the kindergarten children indicated no difference in the number of groups on the pre- and poststory sorts,  $F(1, 17) < 1$ . Kindergarten children constructed an average of 3.06 groups on the pre- and 2.9 groups on the poststory sort. Thus, hearing the stories reduced the number of groups only in the sorts of the fifth graders.

In contrast, the composition of the groups was affected by hearing the stories. The identity of the stories that were sorted together was examined through cluster analysis. A complete-link cluster analysis (Johnson, 1967) was conducted on each of the similarity matrices, where the entries in the matrix were the probabilities of co-occurrence of each story with the eight other stories (five other stories for the kindergarten children). The results of the cluster analyses are shown in Figure 1. Based on the prediction that stories that exemplify the same rule would be placed in the same group, rule-based similarity sorts should have three clusters of stories reflecting the three rules, Helping (H), Not being afraid (A), and Obeying (O).

It is clear from the prestory clusters for the third (Figure 1A) and fifth graders (Figure 1B) that, in general, the picture groupings prior to story presentation do not reflect rule-based grouping. Furthermore, the level of consensus is relatively low. Among the third graders, there are two groups, consisting of the two cross-rule stories (H1 and A1; A2 and O1), that 9 of the 18 children sorted together (.5 similarity).





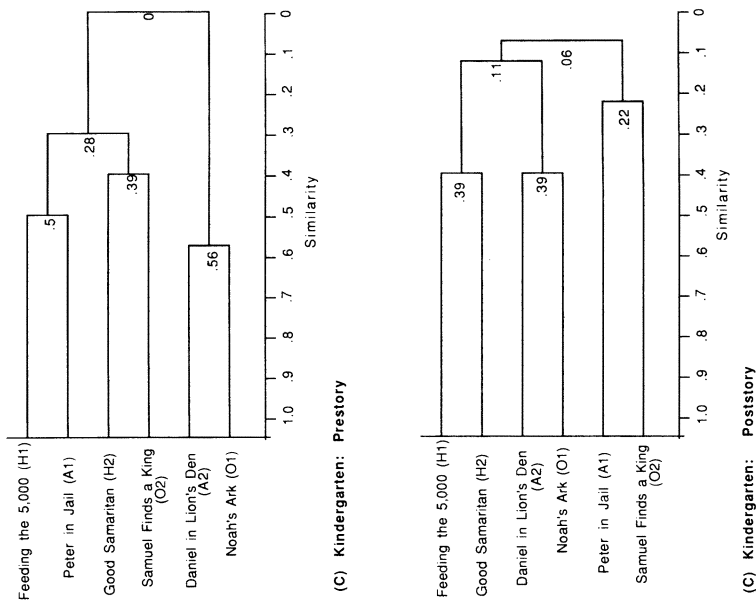


Figure 1. Cluster analysis solutions derived from prestory and poststory sorts constructed by (A) third, (B) fifth, and (C) kindergarten groups

The other clusters reflect less agreement among the third graders and also tend to consist of cross-rule stories. Similarly, among the fifth graders, a cross-rule pair is grouped 60% of the time (H1 and O3); however, there is relatively little agreement on the other groups, which tend to reflect rule mixtures.

The prestory sorts can be compared with the cluster analyses derived from the poststory sorting. The groups constructed after hearing the stories reflect greater within-rule than cross-rule grouping for both the third and fifth graders. For both the third and fifth graders the Not being afraid stories form the tightest cluster, .7 similarity for third and .6 for fifth graders. Thus, both grades formed clusters based on rule commonality after hearing the story exemplars of each rule.

The kindergarten data also indicated a change in the nature of the clusters formed by the pre- and poststory grouping (Figure 1C). Two trends are of interest. First, the prestory data show a greater degree of consensus than the poststory. However, this consensus on the prestory group does *not* reflect grouping based on rules of conduct, because each cluster consists of cross-rule pairs. Rather, the clusters may reflect perceptual similarity among elements of the pictures. The most similar were "Daniel in the Lion's Den" (A2) and "Noah's Ark" (O1), which both have a man and animals in the pictures. Second, in the poststory solution the pictures were grouped together differently than in the prestory sort but only the Helping rule stories formed a cluster.

From the cluster analyses of the third and fifth graders, it appears that the prestory sorts do not reflect rule-based grouping but the poststory sorts do. However, cluster analysis is an exploratory technique in which hypothesis testing cannot be done. We wished to confirm the hypothesis that the prestory sorts were not similar to a rule-based sort and that the poststory sorts were. To do so, the structures of the co-occurrence matrix for the presort and for the postsort were each compared with a "predicted" co-occurrence matrix, i.e., one that would result from complete rule-based sorting, using the quadratic assignment (QA) paradigm in the confirmatory mode (Hubert & Levin, 1976; Pellegrino & Hubert, 1982). The structure of the predicted matrix reflected three groups: the Helping, the Not being afraid, and the Obeying stories.<sup>1</sup>

Confirming the conclusions suggested by visual examination of the cluster analyses, neither the third-grade nor the fifth-grade prestory co-occurrence matrices were similar to the predicted matrix,  $p = .33$  and  $p = .37$ , respectively. However, the third-grade poststory and the fifth-grade poststory co-occurrence matrices were each significantly similar to the predicted matrix,  $p = .01$  and  $p < .01$ . Neither the pre-

nor poststory sort was similar to the predicted rule-based sort for the kindergarten group,  $p = .84$  for the pre- and  $p = .04$  for the poststory sort. However, the poststory sort produced a matrix that was substantially closer to the predicted matrix than was the prestory sort.

The QA technique also allows the comparison of two observed matrices. This comparison was conducted on the two observed matrices in each grade and confirmed the second conclusion reached through visual inspection of the cluster analyses. In each grade the pre- and postsorts were not similar,  $p = .14$  for the third graders,  $p = .12$  for the fifth, and  $p = .19$  for the kindergartners. Thus, in each grade, hearing the stories changed the groupings constructed during the sorting task. In the older children, the sort after the stories was similar to the sort resulting from rule-based grouping.

We conducted one final set of analyses on the sorting data to examine the behavior of individuals. A co-occurrence matrix based on the sorting behavior of one subject can also be compared with a predicted matrix, using the QA technique. One third and one fifth grader produced a pattern of entries on the prestory sort that was significantly close to the rule-based sort. After the stories, 10 (55%) of the third graders and 9 (50%) of the fifth graders constructed sorts that were significantly similar to the rule-based sort. The increase in the number of children constructing rule-based sorts was significant in the third grade,  $z = 3.27$ , and in the fifth,  $z = 3.02$ ,  $ps < .01$ . Among the kindergartners, there were no children whose prestory sorts were similar to the rule-based sort. There were 4 children (22%) who produced rule-based groupings after hearing the stories.

### Verbal explanations of post-story sorts

Children's verbal explanations of why particular stories had been grouped together during the poststory sort were classified into the four categories shown in Table 1. Responses were classified into the rule-based category if the statement referred to a rule of conduct common to the stories in the group that was being explained. Examples of this category are *they are all about helping* or *they are all about being kind*. Furthermore, if a child's explanation used a verb form of a rule, this was also accepted as rule-based, as shown by Examples c and d in Table 1.

Responses were classified as action-based if the statement reiterated specific but similar actions that had occurred in the stories in the group being explained. Responses were classified as character-, object-, or location-based when the explanation for the grouping of the stories referred to concrete aspects of the stories or pictures, i.e., character

identity. The "no response" category encompassed "don't knows," shoulder shrugs, and silence on the part of the child.

Reliability in classification of the verbal explanations was above 90% on a 20% sample, and disagreements were resolved in discussion. All of the verbal statements could be classified using the categories shown in Table 1. Furthermore, although adults might expect a response such as, "They all have miracles in them," this response was not made by any of the children. However, the response "They all have Jesus in them" was made and was scored as character-based.

The overall group trends in the types of justifications are shown in Table 2, using the total number of explanations and the distribution of these across the four scoring categories for each grade. Among the fifth graders, rule- and action-based justifications were given equally often and more frequently than character/object/location responses,  $z_s > 4.1$ ,  $p_s < .01$ . Among the third graders, action-based explanations were given significantly more often than rule-based,  $z = 2.67$ ,  $p < .01$ . Each of these two categories occurred significantly more often than the character/object/location category,  $z_s > 4.4$ ,  $p_s < .01$ . Among the kindergarten children, action-based explanations were given significantly more often than either rule-based ones,  $z = 3.57$ ,  $p < .01$ , or character/object/location categories  $z = 1.96$ ,  $p = .05$ .

Comparisons indicated that the proportion of responses in each of the categories was equivalent in the third and fifth grades. Both groups produced a higher proportion of rule-based explanation than kin-

Table 1. Scoring categories and examples of verbal explanations

Scoring category	Examples from protocols
Rule-based	a. They are all about helping. b. They are all about being kind. c. The boy helped by giving his food, and the man helped by bandaging his sores. d. They all listened to what God said. <sup>a</sup>
Action-based	e. They were all thrown in some place. f. They all have people praying. g. They all have people doing something bad.
Character-, object-, location-based	h. They all have mountains. i. They all have Jesus in them. j. They all have food in them.
No response	k. They just go together.

<sup>a</sup> Listening was coded as reflecting the meaning of obeying.

dergartners,  $z_s = 2.73$  for third and  $3.31$  for fifth,  $p_s < .01$ . However, kindergartners produced significantly more character/object/location responses than the older students,  $z_s = 3.49$  and  $2.53$ , respectively. The proportions of explanations in the action-based category were equivalent across grades. Thus, in each grade, about half were action-based explanations. Of the remaining explanations, the rule-based accounted for the majority among the two groups of older students, whereas the more concrete character/object/location explanations accounted for the majority among the youngest children.

A final issue was the relationship between sorting and verbal explanation behaviors. We examined whether children who constructed a sort significantly similar to the rule-based sort tended to give more rule-based explanations than those whose sorts were not significantly like rule-based ones (Table 2). In the fifth grade, the rule-based sorters gave a significantly larger proportion of rule-based explanations than did the nonrule-based sorters,  $z = 2.04$ ,  $p < .05$ . This pattern was not observed in either the third or the kindergarten grades, where the proportions of responses across each of the categories were similar for the rule-based and nonrule-based sorters.

Table 2. Category distributions of verbal explanations

Grade	Total	Rule	Action	Character/ object/ location	No response
Fifth	<u>70<sup>a</sup></u>	<u>.40</u>	<u>.41</u>	<u>.09</u>	<u>.10</u>
Rule-based sorters ( $n = 9$ )	32	.53	.38	.03	.06
Non rule-based sorters ( $n = 9$ )	38	.29	.45	.13	.13
Third	<u>80</u>	<u>.34</u>	<u>.55</u>	<u>.05</u>	<u>.06</u>
Rule-based sorters ( $n = 10$ )	44	.32	.57	.05	.02
Non rule-based sorters ( $n = 8$ )	36	.36	.53	.07	.06
Kindergarten	<u>54</u>	<u>.13</u>	<u>.44</u>	<u>.26</u>	<u>.17</u>
Rule-based sorters ( $n = 4$ )	12	.25	.58	.08	.08
Non rule-based sorters ( $n = 14$ )	42	.10	.40	.31	.19

<sup>a</sup> The underlined numbers are the data for the total sample in each grade.

## DISCUSSION

The results of the rule recognition task indicate that all of the children could identify exemplars of each of the three rules of moral conduct. The sorting task results indicate that fifth and third graders tended to base their similarity groupings on these rules. However, rule-based *verbal explanations* of the groupings were less likely than rule-based sorts. The kindergarten children tended to focus on the actions and concrete elements in the stories in both their groupings and verbal explanations of the groupings despite their demonstrated ability to recognize exemplars of each of the rules. These results are consistent with findings regarding developmental changes in the features of objects that guide similarity groupings (Markman & Hutchinson, 1984; Nelson, 1979).

From an instructional perspective, the results indicate that children are able to identify instances of particular rules of moral conduct embedded in stories when these are considered one at a time. However, the ability to recognize an instance of a rule when cued that there are examples of the rule among a circumscribed set of events does not imply that all individuals will use the rules as the basis for similarity groupings. Detecting similarity at the level of the rule of conduct is an important component of the process of applying the rule, and the moral behavior associated with it, to a new and novel instance of the rule, i.e., to a situation in which similar moral conduct would be expected. For example, recognizing that a story is about the rightness of helping others in distress may not translate into recognizing a novel instance of distress and the execution of the helping behavior. Thus, application and extension of a rule of conduct to a new instance requires more than the ability to recognize the rule in each instance. The recognition of rule-based cross-situation similarity and the enactment of the behavioral implications of that similarity may not be spontaneous.

Instruction designed to foster recognition in different situations of similarity not based on specific actions or physical features may be necessary to achieve transfer of principles taught in the classroom to a wider societal context. Moral education and curricula that clarify values may need to include components that explicitly teach children how to generalize from the particular scenarios studied in the classroom to the real-life situations in which they are expected to apply the morals and values taught.

**Appendix. Modified Bible stories exemplifying the three rules**

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**1. Helping stories**

H1. "Feeding the Five Thousand." One day Jesus was talking to many people. It was getting late and the people were very hungry. Jesus asked his helpers where they could buy food for all the people. One helper said that they did not have enough money to buy food for all of the people. Another helper said that a young boy had five loaves of bread and two fish. *The young boy heard this and decided to help. He gave the bread and fish to Jesus for the people.* Jesus caused a miracle, and there was enough bread and fish for everyone.

H2. "The Good Samaritan." One day a traveler was walking down a road when three bad men jumped on him, beat him up, and took his money. They left him lying on the ground hurt very badly. Another man came along and heard a crying sound. He saw the hurt traveler on the ground. *He decided to help and gave the hurt traveler something to drink, bandaged him, and took him to an inn.* The next morning he had to leave, but the hurt man stayed in the inn until he was all better.

H3. "Philip Helps a Man." One day a man named Philip saw a man sitting in a chariot reading the Bible. As Philip got closer he could hear the man reading it out loud. Philip loved the Bible and understood it very well. He came up to the man and asked him if he could understand what he was reading. The man answered, "I could understand it better if someone would tell me what it means." *When Philip heard this he decided to help. Philip told the man what the verses meant that he was reading.* They had a good time talking together about the Bible. It got late and Philip had to leave.

**2. Not being afraid stories**

A1. "Peter in Jail." After Jesus went to heaven, Peter, one of Jesus' helpers, was telling people all the wonderful things that Jesus had done. The high priest did not want Peter talking about Jesus, so he told Peter that he would go to jail if he did not stop. But Peter kept on talking about Jesus. So, the high priest had Peter put in jail. *Peter was not afraid because he knew that God would be with him.* During the night God opened the jail door so that Peter could leave.

A2. "Daniel in the Lion's Den." In the Bible there is a story about a man named Daniel who prayed every day to God. The king said that if anyone prays to God, then they would be thrown into the lion's den. Even though Daniel knew what would happen, he still prayed. When the king found out, he had Daniel put into the lion's den. *Daniel was not afraid to go into the den because he knew that God would be with him.* The next morning the king came to the lion's den and saw that Daniel was not hurt so he took him out of the den.

A3. "Three Boys in Babylon." In bible times there were three boys who



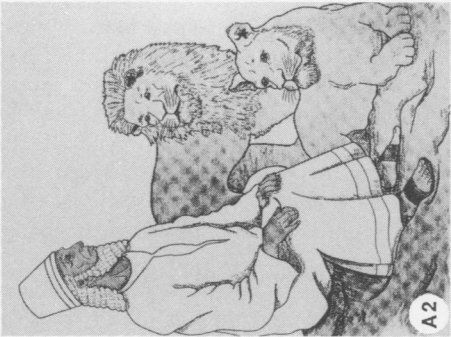
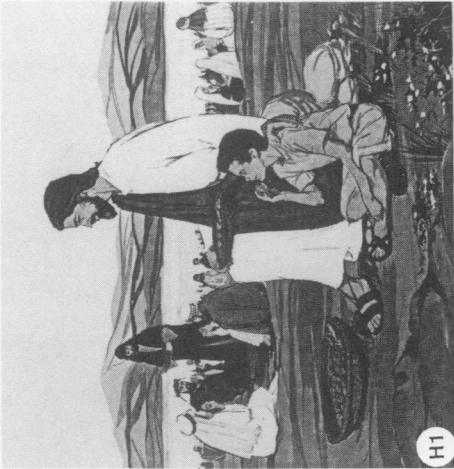




Figure A-1. Pictures that were paired with stories.

were taken from their home to a faraway land. In this land there was a king who made a giant statue of himself. He wanted all the people to worship the statue. But the three boys would not worship it because they only worshipped God. The king decided to throw the boys into the fiery furnace. *The three boys were not afraid because they knew that God would be with them.* When the soldiers threw them in, the fire did not hurt them. The king saw that they were not hurt, so he called them out of the furnace.

### 3. Obeying stories

O1. "Noah and the Ark." In the Bible there is a story about a man named Noah. God told Noah to build a big boat because there was going to be a great flood. *Noah obeyed God and began to build the boat.* Noah's neighbors and others who passed by laughed at him. They thought that it was silly to build such a big boat. When the boat was finished, Noah took his family and some animals into it. It started to rain very hard and there was a great flood.

O2. "Samuel Finds a King." One day God told Samuel to go to Jesse's house to choose a new king. Samuel knew that King Saul would not want him to choose a new king and would probably hurt Samuel if he found out. *But Samuel obeyed God and went to Jesse's house to choose the new king.* Samuel looked at all of Jesse's sons and God told him that David was to be the new king. Samuel poured a little bit of oil on David's head to show that he was to be the new king.

O3. "Abraham and Isaac." In bible times there was a man named Abraham. He had a special son called Isaac that he loved very much. One day God told Abraham that he was to give his son to God as a special gift. This would mean that Abraham would never see Isaac again. Abraham's wife and friends did not want him to do it, but *Abraham obeyed God and brought Isaac to the place where God told him.* God knew how much Abraham loved Isaac so he decided that Abraham could keep his son. Abraham was very happy. He saw a lamb and gave it to God as a special gift.

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*Note.* Information in italics cues the rule.

### Notes

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1. When using the QA procedure in the confirmatory mode, an observed matrix is compared with a predicted matrix to assess whether the pattern represented in one matrix is also present in the other. The QA technique essentially involves testing for the significance of the correlation between the two matrices, where the null hypothesis is that there is no similarity between the patterns of entries in the two matrices. The obtained correlation is compared with a distribution of correlations that could be obtained based on all equally likely permutations of rows and corresponding columns of a

matrix with those particular specifications. In this case, the significance of the correlation was evaluated by examining the probability that that degree of similarity would be observed by chance in a random sample of 100 permutations (see Gliner, Goldman, & Hubert, 1983, for discussion). The matrices for the fifth and third graders were  $9 \times 9$ , and for the kindergartners they were  $6 \times 6$ .

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